

*Citation for published version:*

Chowdhury, SM 2021, The Economics of Identity and Conflict. in *Oxford Research Encyclopedia of Economics and Finance*. <https://doi.org/10.1093/acrefore/9780190625979.013.613>

*DOI:*

[10.1093/acrefore/9780190625979.013.613](https://doi.org/10.1093/acrefore/9780190625979.013.613)

*Publication date:*

2021

*Document Version*

Peer reviewed version

[Link to publication](#)

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# The Economics of Identity and Conflict

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**Summary:** Conflicts are ubiquitous part of our life. One of the main reasons behind the initiation and escalation of conflict is the identity, or the sense of self, of the engaged parties. It is, hence, not surprising that there is a consistent area of academic literature that focus on identity, conflict, and their interaction. This area model conflicts as contests and focus on the theoretical, experimental, and empirical literature from economics, political science, and psychology. The theoretical literature investigates the behavioral aspects – such as preference and beliefs – to explain the reasons for and the effects of identity on human behavior. The theoretical literature also analyzes issues such as identity dependent externality, endogenous choice of joining a group etc. The applied literature consists of laboratory and field experiments, and empirical studies from the field. The experimental studies find that the salience of an identity can increase conflict in a field setting. Laboratory experiments show that whereas real identity indeed increases conflict, a mere classification does not do so. It is also observed that priming a majority–minority identity affects the conflict behavior of the majority, but not of the minority. Further investigations explain these results in terms of parochial altruism. The empirical literature in this area focus on the various measures of identity, identity distribution, and other economic variables on conflict behavior. Religious polarization can explain conflict behavior better than linguistic differences. Moreover, polarization is a more significant determinants of conflict when the winners of the conflict enjoy a public good reward; but fractionalization is a better determinant when the winners enjoy a private good reward. As a whole, this area of literature is still emerging and the theoretical literature can be extended to various avenues such as sabotage, affirmative action, intra-group conflict, endogenous group formation etc. For empirical and experimental research, exploring new conflict resolution mechanisms, endogeneity between identity and conflict, and evaluating biological mechanisms for identity related conflict will be of interest.

*JEL Classification:* C72, C9; D74

*Keywords:* Identity; Conflict; Social Identity; Contest; Experiment

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\* I thank Jordi Brandts and Joo Young Jeon for useful comments. I retain the responsibility for any remaining errors.

*“Violence is fomented by the imposition of singular and belligerent identities on gullible people, championed by proficient artisans of terror.”*

- Amartya Sen (2007). “Identity and Violence: The Illusion of Destiny”, p.2.

## **1. Introduction**

Conflict and competition are as common in day to day life as cooperation and acquaintance. People engage in conflict for various reasons. It can be due to the eagerness to win over the others, or to avoid losing, or to break away from a (bad) status quo. Conflict also emerges due to various behavioral factors of the involved parties such as pride, spitefulness, and feeling of insult – to name a few. One of the most prominent motivations for engagement in conflict, however, is the identities of the involved parties. One of the oldest epics in the world, Iliad (circa 1260–1180 BC), describes the conflict between people identifying themselves as either Greeks or Trojans. Even in the early 21st century, various identities – nationality, race, ethnicity, religion, language, immigration status, and economic class – turn out to be some of the main reasons for conflict. This study surveys the economics literature, and parts of the psychology and political science literatures on identity, conflict, and their interrelation.

As can be expected, the topic of conflict has been a very active area of research for a long time. Researchers from Economics, Political Science, and Psychology investigate various aspects of conflict with diversified tools and methods. Moreover, the way conflict is defined in different parts of the literatures vary substantially. Along with physical conflict, war etc., features such as conflict of interest, failure to cooperate, bargaining etc. are often considered as conflict (see, e.g., Bolton and Croson, 2012). For the purpose of the survey, define conflict as situations in which engaged parties exert costly resources to resolve a dispute or to gain a reward. This definition matches with the definition of a ‘contest’ (Konrad, 2009; Fu and Wu, 2019), allowing to employ the knowledge of contest theory to structure this survey. Furthermore, although there exists an array of qualitative literature on conflict (see, e.g., Ashmore et al., 2001; Deutsch et al., 2011), this survey defines the scope of the analysis on the relevant quantitative literature in economics, political science, and psychology.

In the same note, the literature on identity is vast and diversified. There is a long history of psychology research in identity beginning from the 1950s (see, e.g., Foote and Cottrell Jr, 1955;

Sherif et al., 1961, Turner, 1978; Tajfel and Turner, 1979). In economics, Sen (1985) introduces the concept of identity, defining as “how the person sees himself or herself”. Since then a plethora of research has been carried out (including by three Nobel Laureate economists: George Akerlof, Amartya Sen, and Jean Tirole) in the topic of the economics of identity. The literature defines identity as a type of categorization: who a person thinks they are and what they think the other people are. Such categorization remains important since it affects one’s interaction with others, and the resulting welfare. More formally, Tajfel and Turner (1979) coin that people first categorize different identities (through various characteristics such as gender, race, religion etc.), then they identify themselves and others into such diverse categories, and finally they compare themselves with others – while making decisions. Akerlof and Kranton (2010) summarize that this process not only leads to in-group / out-group biases, but the utility itself gets affected by the categorization. The identity literature covers various research topics such as organization, education, social norm, behavior under risk, gender, politics etc. This survey limits the scope to the interaction between identity and conflict. Furthermore, since gender as an identity itself has a major significant part in the literature, gender as an identity remains out of scope of this survey.

There has been recent coverage on the literature on conflict (Garfinkel and Skaperdas, 2012; Wärneryd, 2014) in which various theoretical and applied aspects of conflict and conflict resolution are discussed. Similarly, recent coverage on the economics of identity (Akerlof and Kranton, 2010) discuss how identity is intertwined in our everyday life. Charness and Chen (2020) summarize how identity can reinforce greater good, such as improving cooperation, advocating equality, reducing discrimination, reducing crime etc. Shayo (2020), in another survey, covers the policy related issues of identity. The current survey, on the other hand, focuses only on conflict, and points out the possible areas of further research. In this sense, it complements the survey by Charness and Chen (2020) and partially Shayo (2020).

A number of basic questions have motivated the research agenda in the field of identity and conflict. Both theoretical and applied research explore the way the salience of either a common or a different identity affects one’s decision making. Modeling identity and its effect on individual utility is another important area of theoretical research. This area of investigation is also extended to the endogenous choice of identity groups, and to the tension between self-interest and the

interest of the social group. The multi-dimensionality of identity and its implementation for possible conflict resolution also remains an active research area. Experimental research in identity and conflict employ both laboratory and field experiments to test these theories. Researchers also explore the effects of real and minimal identity in various tasks. Empirical research, on the other hand, are more focused on the issues such as the effects of fractionalization, polarization, and political systems on conflict intensity.

Given the scope of this survey, the continuation first provides a theoretical structure in the intersection of identity and conflict, and points out the main theoretical mechanisms and contributions in this area. The focus then moves to the applications and evidences regarding the relationship between identity and conflict. This part is divided into experimental results and empirical results. The final section then summarizes the existing knowledgebase, and points out some of the significant questions in this area that are yet to be investigated.

## **2. Theoretical background and results**

Start with a contest theory model of conflict without introducing the conception of identity. For the sake of simplicity and intuition, employ only an individual conflict with symmetric players, which can easily be extended to asymmetric players, or to group conflict settings. In this model the engaged parties expend costly resources such as money, effort, time etc. in the conflict and the winner is rewarded with a valuable prize. For the sake of brevity, call such resources as ‘effort’. The costly efforts are exerted in order to improve the probability of winning the prize. This prize can be viewed as the pride gained in winning a conflict, a piece of land (e.g., Kashmir in the context of India, Pakistan, and China), or the spoils of a war. As in the real life situation, irrespective of the outcome of the contest, players forgo their efforts.

Following the same, consider a contest with  $N$  identical risk-neutral players. Player  $i$  (where  $i = 1, 2, 3, \dots, N$ ) spends his costly effort  $b_i \geq 0$  to win a prize of common value  $V > 0$ . The level of effort, hence, is considered as the intensity of conflict – a higher effort level also reflects a higher conflict level. The probability that player  $i$  wins the prize (contest success function; Skaperdas, 1996) is:  $p_i(b_i, \mathbf{b}_{-i})$ , where  $\mathbf{b}_{-i}$  is the vector of efforts of all players except  $i$ .

The contest success function has the desired properties:  $\frac{\partial p_i}{\partial b_i} \geq 0$ ,  $\frac{\partial p_i}{\partial b_{-i}} \leq 0$ , and  $\sum_i p_i = 1$ . This means – own-effort weakly increases own probability of winning the contest, whereas opponent efforts weakly decreases it; and at least one of the players wins the contest. Various popular contest success functions such as the lottery (Tullock, 1980) where  $p_i(b_i, \mathbf{b}_{-i}) = b_i / \sum_j b_j$  if  $\sum_j b_j \neq 0$ , and  $1/N$  otherwise; or the all-pay auction (Baye et al., 1996) where  $p_i(b_i, \mathbf{b}_{-i}) = 1/k$  if  $b_i$  is one of the  $k$  highest efforts, and 0 otherwise; can be employed in this setting. Without the concept of identity, Player  $i$  tries to maximize his expected payoff:

$$\pi_i = p_i V - b_i. \quad (1)$$

It is possible to introduce the concept of identity in this structure in many different ways. A simple way to introduce identity in the utility function is to follow the same approach as in the ‘other regarding preferences’ literature. The other regarding preferences literature is broadly divided into preference based models, and belief based models. Following the same path, consider one example from the preference based identity model, in which identity is introduced through a group contingent social preference. This is a modified version of the social preference model introduced by Chen and Li (2009) that is employed in the identity literature also by Chen and Chen (2011).

In this model, a player’s utility is a combination of the own payoff, (relative) payoffs of the players with the same identity, and the (relative) payoffs of players with different identity. Formally, if there are two identity groups ‘In-group’ ( $I$ ) and ‘Out-group’ ( $O$ ) and Player  $i$  belongs to the in-group, then their utility function can be written as:

$$u_i = u_i(\pi_i, \sum_{j \neq i, j \in I} f_i(\pi_i, \pi_j), \sum_{j \neq i, j \in O} g_i(\pi_i, \pi_j)) \quad (2)$$

where  $f_i$  and  $g_i$  are functions measuring relative payoffs between the players. These functions, for example, can take the form of inequality aversion as originally introduced by Fehr and Schmidt (1999) and employed in contests by Reichmann (2007), Herrman and Orzen (2008), and Chowdhury et al. (2018). Presumably, a relatively lower payoff compared to others affects utility negatively, whereas a relatively higher payoff can affect utility either negatively (inequality aversion) or positively (spite). These effects are expected to be higher while in comparison with the out-group players.

After imposing some specific functional forms for the contest success function, and for the social preference functions, it will be possible to find closed form solutions for the contest game with and without identity. Under certain reasonable regularity conditions, such as more spitefulness towards out-group compared to in-group, the results show higher equilibrium effort exerted when the identity is present versus when it is not. This, in turn, provides a micro-foundation regarding why the presence of an identity can increase the intensity of conflict.

Note that, such group contingent social preference can also occur when the identity of the winner is included in the utility. In the contest literature, Linster (1993) is the first to introduce such a structure with a lottery contest success function (Tullock, 1980), albeit without mentioning the term ‘identity’. In this model, Player  $i$ ’s valuation of the reward depends on the identity of the winner of the reward. Hence, the valuation of the reward for player  $i$  is a vector  $v_i = (v_{1i}, v_{2i}, \dots, v_{Ni})$ , consisting of the valuation of player  $i$  when player 1 wins, player 2 wins and so on. It is assumed that everyone strictly prefers own win over others, but can prefer the win of some players over some other players – if self-win is not realized. This models an identity dependent externality, because the payoffs of the engaged parties do not only depend on their own win, but it also on the identity of the winner.<sup>1</sup> This can be easily translated into real life phenomena such as multi-sided war, or conflict among various ethnicities. This simple model gives some very intuitive results. It is found that as players value others’ winning more, they exert less effort, i.e., identity dependent externality may result in less conflict. However, if the players only value the winning of in-group rivals, and not the out-group ones, then the out-group players increase conflict effort.

This area of theoretical research is extended by Esteban and Ray (1999), Klose and Kovenock (2015a, b) and Bagchi et al. (2019). Esteban and Ray (1999) also use a lottery contest success function, but provide a more general structure and focus on the distribution of the types of players in different characteristics. They consider many mutually exclusive groups consisting of individuals, the outcome to be pure public goods, and a general cost function of effort. They prove the existence and uniqueness of equilibrium, and analyze the effects of the distribution of players

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<sup>1</sup> Note that such identity dependent externality is different from outcome contingent spillover (e.g., Chowdhury and Sheremeta, 2011), where depending on the conflict outcome opponent effort enters into one’s utility.

in different groups on the level and pattern of conflict.<sup>2</sup> Klose and Kovenock (2015a, b) investigate identity dependent externality with an all-pay auction contest success function. Klose and Kovenock (2015b) characterize the equilibria in such all-pay auctions. They find that the standard results of all-pay auctions hold only when identity dependent externalities are ‘mild’. With sufficient externalities, however, equilibria may not be payoff equivalent, and even identical players may earn different payoffs. These results show that with the introduction of identity, the standard results in conflict and conflict resolution may not hold. Klose and Kovenock (2015a) use the same theoretical structure to investigate the interaction between extremists and moderates. They define extremism as a higher per capita effort by radicals compared to centrists. They find that under such identity dependent externalities, extremism indeed can suppress moderates in the sense that even when the radicals are minorities, they exert higher effort than the moderates. Another theoretical application of identity in conflict is carried out by Bagchi et al. (2019). They explore the idea of proxy war with three sponsors of war and three proxies. They implicitly assume that two of the sponsors are in-group whereas the remaining sponsor is out-group. There exist multiple equilibria for this game. However, all the sponsors exert positive effort in equilibrium only when the winning reward is small. When the reward is high enough, the two in-group sponsors coordinate in a way such that only one of them engage in conflict – reflecting implicit alliance formation. The authors also work out conditions for alliance to be formed explicitly. This study sheds light on the importance of identity in endogenous alliance formation in conflicts.

The group contingent social preference approach reported so far, however, is introduced here only to provide the conceptual background and to allow a micro-foundation of the results obtained from the laboratory or from the field. There are additional preference-based and belief-based approaches in the literature to model identity, discussing all of which in detail will be out of scope of the survey. Hence, only some of those models are covered. For an excellent and comprehensive summary of those approaches, please see Charness and Chen (2020, Sec. 2) and Shayo (2020).

Among the preference based identity models, Akerlof and Kranton (2000) introduce the idea of norm of the society intertwined with the identities. The players’ utility then depends on their own

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<sup>2</sup> See also Esteban and Ray (1994) for a measure of polarization that is relevant for identity-wise fragmented society; Esteban and Ray (2008) for the interaction of class and ethnicity as identity in the context of conflict; and Esteban and Ray (2011) for an interpretation of social distance and inequality as identity.



action, the action of the other players, and the degree of deviation from the norm. This structure is employed to understand various issues such as the labor market, schooling etc. The studies discussed till now consider the existing identity groups as given. However, often people form such identity groups endogenously. Shayo (2009) considers the issue of one's endogenous choice of groups. Players gain utility from their payoff, the status of their group, and their individual social distance from the group they identify with. Bernard et al. (2016) use a similar model, but endogenize the social distance as well. These models are also employed in various contexts, especially in public economics and trade. Another way an identity group can be evolved is through social interaction. Fang and Loury (2005), Freyer and Jackson (2008), and Akerlof (2017) take this approach and use various model specifications to endogenize group identity as well as the norms for such groups. All these models include identity into the players' preference system. However, this leaves out a very important concept: identity is not only what one thinks about themselves, but also what they think about others perceive them to be. Bénabou & Tirole (2011) introduce a belief based identity model in which players have incomplete information regarding their own identity and make costly investments in building their identity.

Theoretical investigation on the interaction of identity and conflict are limited, and introducing all these diversified models to attain insight regarding behavior in conflict still remains an open question. One such attempt is made by Sambanis and Shayo (2013), who investigate whether a common identity among conflicting agents can mitigate the conflict. They also explore the relationship between the pattern of social identification and conflict. In this model members of two groups are engaged in a group specific public good prize group contest (Katz et al., 1990). The social identity has three building blocks: social groups, perceived distances among the social groups, and the relative value or status of the social groups. The status depends on the relative payoff and exogenous factors. The authors then characterize the social identity equilibria and show that a vicious cycle might arise in which conflict persists and the unifying national identity is not salient. These results match well with the empirical observations from poor conflicting countries.

### **3. Evidences of identity and conflict**

The evidences of the relationship between identity and conflict has emerged even before the theories were worked out. Researchers in this area use two main methodologies: empirical methods

employed in the field, and experimental method employed in the laboratory as well as in the field. The empirical evidences from the field are obtained mostly by economics and political science researchers. These results provide us with a direct evidence relevant for the specific cases. Oftentimes, however, appropriate data for pursuing such analysis remain unavailable. Even when the data is available, an appropriate identification may not be possible. The experimental studies run by economists and psychologists, on the other hand, do not face such issues. The experimental researchers have a higher level of control and can employ straightforward identification strategies. Moreover, experimental researchers are able to investigate the effects of both real (e.g., race) and artificial (e.g., student ID number) identities. However, the results from experiments often face the critique of lack of external validity and generalization. In summary, both the methods have its own benefits and are viewed as complementary tools to understand the research topic better. In the continuation first the results from experiments and then the results from empirical research are reported.

### **3.1. Experimental evidences**

As defined in the scope of this study, only the experiments that use the features of contests are covered in this survey. However, other family of games, such as the prisoner's dilemma is often employed to understand conflict (See, e.g., Bornstein, 1992). For a comprehensive survey of contest experiments in general please see Dechenaux et al. (2015), and for conflict experiments beyond the structure of contests please see the survey by Abbink (2012). Note also that instead of classifying the experimental results in terms of methodology (laboratory or field) used, we organize those in terms of the research questions asked.

Experimental researchers employ both real (often termed as 'natural') and artificial (termed as 'minimal') identities to investigate research questions. Clear methodological protocol has evolved in the literature implementing either of the identities. While using natural identity, the researchers make such identity salient by either mentioning the identity (see, e.g., Chowdhury et al., 2016) or by priming on such identity (see, e.g., Shih et al., 1999). For minimal identity, however, the protocol is different. Here, the subjects are assigned with some individual level task that is irrelevant to the conflict game, and depending on the outcome of this task they are anonymously assigned to mutually exclusive groups. An example of such a task is to choose between a pair of

paintings (Chen and Li, 2009). It has been observed in both economics and psychology literature that even the minimal identity often has significant effects on subject behavior. For a broader coverage of minimal identity and non-conflict literature, and further detail about the methodology, please see Charness and Chen (2020).

The experimental conflict literature started with the famous Robbers cave experiment by Sherif et al. (1961). This experiment was run in 1954 in the Robbers cave state Park, Oklahoma (and hence the name) in three stages. In the first stage, 22 pre-teenage boys were randomly assigned in two groups and the group identity was made salient by performing group work. In the second stage, the groups were engaged in various camp games in which only one group can win. In the third stage, the groups were integrated and joint teamwork based tasks were run to enforce mitigation. This is a real effort group contest experiment with minimal group identity. The researchers observed that at stage 2 there were hostility and aggressive behavior against the out-group members by both the groups. This result hints at the effect of identity in the escalation of conflict.

The Robbers cave experiment was run among otherwise homogenous subjects with no prior history of conflict. Diab (1970) replicated the Robbers cave experiment in Lebanon with 10 Christian and 8 Muslim pre-teen subjects divided equally into two groups (5 Christian and 4 Muslims in each group). There was an existing historical conflict between Christians and Muslims in Lebanon. Hence, the within group composition was not homogenous. The two groups were named as "blue ghosts" and "red genies". In the second stage (the conflict stage) of the experiment, a physical and violent fight broke out between the subjects and the third stage was cancelled. Surprisingly, the conflict broke out between the two artificially created groups, and not between the two religious groups. This demonstrates that salience of even minimal group can escalate conflict.

The observation from Diab (1970) only partially in line with the views portrayed in Sen (2007). Sen (1985, 2007) coins the idea of multi-dimensional identity. A person can be categorized into various groups in terms of their gender, age, language, nationality, race, religion etc. But when only one dimension of such identities becomes salient and dominant, then it initiates and escalates conflict. Sen (2007, p. 176) notes that "What is done to turn that sense of self-understanding into a murderous instrument is (1) to ignore the relevance of all other affiliations, and (2) to redefine the demands of the "sole" identity in a particularly belligerent form. This is where the nastiness as

well as the conceptual confusions are made to creep up.”. If one interprets the color coded group in Diab (1970) to be the salient and dominant identity over and above the religious identities of the subjects, then it can easily explain the outcome of the experiment.

However, Sen (2007) also notes that not all the identities have the same effect. Some temporary identity that he terms as ‘classification’, may be salient, but will not have the same effect as the real identities. Some examples of the classification are shoe size, shirt color etc. This idea is supported in Basu (2005, p. 222), who documents that “We hear of religious wars, ethnic tensions and the coming clash of civilizations but we do not hear of friction between short and tall people, between the bald and the hirsute, or between those who can do mathematics and those who cannot.”. If one considers the color coded identity in Diab (1970) as classification, and religion as real identity, then the experimental results do not match with Sen’s hypothesis.

Chowdhury et al. (2016) run a laboratory experiment to test the hypotheses placed by Sen (2007). They run a lottery contest between two groups, and employ three between-subject treatments. In each treatment, a group of three white subjects are matched with a group of three East Asian subjects in a partner matching repeated group contest. In the baseline treatment, no information regarding the group composition is revealed. In the classification treatment, following the structure of Diab (1970), the groups are either called a blue group or a green group. In the identity treatment, the race composition of the groups is common knowledge. They find that the minimal color coded identity does not significantly increase the conflict intensity over the baseline. However, when the real identity is revealed, then the conflict intensity increases and within group free-riding (defined as exerting zero effort) is reduced. These results support the hypotheses of Sen (2007) that a salience of a real identity increases conflict, but that of a classification does not.

Following similar structure as in Chowdhury et al. (2016) with lottery contest success function, Chakravarty et al. (2016) run a lab-in-the-field experiment of individual contest in India with Hindu and Muslim subjects. Their treatment manipulation involves information regarding the religions identity of the subjects, and the degree of religious fragmentation in the subject village. They hypothesize that the effort level in homogenous religion pairs should be lower than in heterogeneous religion pairs in fragmented villages. Whereas they find support for this hypothesis for the majority (Hindus), they cannot find support for the same for the minority (Muslims).

The effects of identity in conflict intensity, hence, is overall positive. Whereas laboratory experiment suggests support for the effect in the direction of the theory, field experiments provide mixed results – and it depends on the subject demographics. One question that remains to be answered, is what drives some subjects to exert a higher level of effort against an out-group subjects in a conflict. This can occur due to their parochial altruism, i.e., in-group love, or out-group hate, or a combination of the two (Bernhard et al., 2006; Choi and Bowles, 2007). Abbink et al. (2012) investigate this with a sequence of prisoner's dilemma game and group contest. In a treatment they also allow group members to punish each other after the effort provisions are met. They find that effort provision increases with peer punishment. They also find that subjects who cooperate in the prisoner's dilemma are likely to exert more effort in the group contest as well. Moreover, subjects who exert low effort are punished by peers. Since standard rational models, or in-group love or out-group hate in separation cannot explain these results, the authors conclude that overall parochial altruism drives the level of conflict. In the context of identity as well, it can be inferred that overall parochial altruism increases the level of conflict in the presence of identity. This proposition, however, is still to be supported with data.

Although not strictly within the contest paradigm, two very relevant experiments are worth mentioning. Weisel and Zultan (2016), using a modified prisoner's dilemma game, are able to distinguish the motivation of individuals to contribute to the group effort, or to free ride. Klor and Shayo (2010) divide their subjects into two different groups in terms of their area of study (a real identity). They are then allocated some individual income and had to vote on the redistribution of the income. It is found that when the group identity is revealed, a significant proportion of the subjects vote to support their in-group even at a cost of their own income. This, however, is not the case for the baseline (when the identity is not revealed). Similar type of analyses, as in these two studies, can be run in a contest structure as well.

Can the inclusion of identity compensate the reduction of effort in a group setting compared to an individual setting in conflict? Huang et al. (2018) run an online all-pay auction experiment in the M-Turk platform to answer this question. Their treatment manipulation comes from the subject identity, and the game they play. In one set of treatments the subjects were simply allocated in two groups, whereas in the other treatments the groups consisted of Democrats and Republicans. The

all-pay auction was either run individually or between three-payer groups. It is well known that subjects exert less effort while in a group compared to while contesting alone. The results of this experiment show that even when the political identity is made salient, the effort provision in a group setting remains lower than in an individual setting.

### **3.2. Empirical evidences**

The main questions investigated in the empirical literature in identity and conflict are the identity related determinants of conflict, and whether those can be separated from economic determinants. Compared to the theoretical and experimental investigations, the empirical literature on identity and conflict with field data is relatively new and still developing. This is mainly due to the lack of availability of appropriate data and lack of control over the variables. An important exception is Collier and Hoeffler (1998), who investigate whether civil wars are caused by economic reasons or due to ethnolinguistic identity. They build a simple cost benefit model of civil war, and use civil war data from 1816-1992 for various countries to test the hypotheses from the theoretical model. In specific, using a probit and a tobit regression they determine the occurrence and duration of civil wars. The results show that both identity and economic reasons are responsible for the occurrences of civil wars. Economic determinants such as initial income, initial population size, available resources, along with the identity related determinant ethno-linguistic fractionalization turn out to be significant determinants of conflict (civil wars). Interestingly, they find that the degree of identity fractionalization has a non-monotonic effect on the conflict, i.e., a moderate level of fractionalization affects the conflict the most.

In the same line Reynal-Querol (2002) investigates the effects of religion and language related identities in the intensity of civil war, and the role of the existing political system in conflict resolution. She gathers and combines data from various sources for 138 countries for the timeframe of 1960-1995 on civil war, level of democracy, characteristics of political system, rebellion, education, export, religious fragmentation, linguistic fragmentation, religious polarization etc. Running a logistic regression on the incidence of ethnic civil war, the author finds that both animist diversity – a measure of identity especially in Africa – and religious polarization are significant predictors of conflict. The results also show that religious polarizations are more important than

linguistic differences as a predictor of civil war. Finally, a consociational political system significantly reduces the occurrences of civil wars.

Esteban et al. (2012a, b) investigate the relationship between ethnicity and conflict. Unlike Collier and Hoeffler (1998) or Reynal-Querol (2002), the authors do not restrict conflict only to civil war, but rather define it on the basis of death toll. Esteban et al. (2012a) use the three measures of ethnic distribution: polarization, fractionalization, and the Gini-Greenberg index introduced in Esteban and Ray (2011) and investigate their effects on conflict (while controlling for various other factors such as population, GDP per capita, Democracy etc.). This is important since these measures essentially show the social distances among identity groups. Using data from 138 countries over the time period of 1960–2008 they find that both the ethnic polarization and the fractionalization measures have significant positive effects on ethnic conflict, whereas the effects of the Greenberg-Gini index is significant and negative. These results suggest that conflict is affected by both public and private components. This investigation is extended in Esteban et al. (2012b) in which similar data, research aim, and empirical strategy are followed. They reaffirm that polarization and fractionalization jointly influence conflict. Moreover, polarization is a more significant determinant of conflict when the winners of the conflict enjoy a public good reward; but fractionalization is a better determinant when the winners enjoy a private good reward. Hence, this study points out the relationship between various measures of social distance of the identity groups, type of the conflict, and conflict intensity.

Mitra and Ray (2014) revisit the issue of economic versus identity related causes of conflict. In a theoretical model of inter group conflict, they show that as the income of a group increases, the conflict intensity against that group increases, while the conflict intensity of that group decreases. The authors then test this theory empirically in the context of Hindus and Muslims in India for the time period of 1979 to 2000. Ethnic conflict is defined in three ways: the number of casualties, the number of death, and the number of riot outbreaks. They run a Poisson specification (and robustness checks with negative binomial and ordinary least square). The results show that indeed an increase in the per capita expenditure (a proxy for income) of the Muslims significantly explains the occurrences of conflict, whereas an increase in the expenditures of the Hindus has the opposite effect. In specific, they find that an 1% increase in the per capita expenditure by the Hindus

decreases the likelihood of conflict up to 8.1%, whereas an 1% increase in the per capita expenditure by the Muslims increases the likelihood of conflict up to 9.9%. The results hint at the possibility that identity related conflict may occur not purely due to the identity differences, but due also to economic reasons perceived by the involved parties.

In a related study, Girard (2017) finds inconclusive effects of inequality in religious conflict in India. Finally, Dasgupta and Pal (Forthcoming) extend this idea into caste related conflict, especially the untouchability issue (avoidance of physical contact by the higher caste people towards the lower caste), in India. They first use a contest theory model, and then use the in data from the India Human Development Survey 2011-12 to arrive at related but somewhat orthogonal conclusion of Mitra and Ray (2014). Dasgupta and Pal (Forthcoming) find that while untouchability and related conflict depends on the inter-group distribution of resources across both caste and religious divides, it becomes less prominent with a relative increase in the collective resource endowment of the lower castes.

#### **4. Discussion**

This is a survey of the literature on identity, conflict, and their interrelation. Conflicts are modeled as contests and the theoretical, experimental and empirical literature mostly from economics, political science, and psychology are included. A large part of the theoretical literature focuses on the behavioral aspects – such as social preference and beliefs – to explain the effects of identity on behavior. It also investigates the issues such identity dependent externality, endogenous choice of joining a group etc. The experimental literature begins with the result that a salience in the difference in identity increases conflict. Further investigations in the laboratory and in the field explore the idea of real versus minimal identity, multi-dimensional identity, parochial altruism, and their effects on conflict behavior. The empirical literature focusses on the various measures of identity, identity distribution, and other economic variables on conflict behavior. This whole field of literature is still emerging and it can be extended to various important avenues. There still remains a list of topics to which the theoretical and applied literature can be extended.

First of all, the current literature confines itself into the traditional aspects of conflict – in which engaged parties exert unidimensional effort to win the conflict. However, there are important aspects of conflict covered in the contest theory literature that can provide with further insights to



the identity and conflict field. In many conflict situations the players not only exert effort to improve their own likelihood of winning, they also exert unproductive effort to damage the likelihood winning of the rivals. Example of such acts are the ‘scorched earth’ policy, economic sanctions, destroying the supply line of the rival, to name a few. In the contest theory literature this act is termed as sabotage. Although there is a long literature on sabotage (see Chowdhury and Gürtler, 2015 for a survey), there is no existing study analyzing the effects of identity on sabotage. Both theoretical and applied investigations in this area will be interesting.

There is also a vacuum in the identity and conflict literature in the area of attack and defense. The existing literature views the parties engaged in conflict ‘similar’ in the sense that they exert effort with the same objective – to win the conflict. In real life, however, oftentimes there are ‘attackers’ (e.g. terrorists) who exert efforts to win over ‘defenders’ who exert efforts to defend (e.g., the government).<sup>3</sup> Chowdhury and Topolyan (2016a, b) employ lottery and all-pay auction contest success functions in group attack and defense games and show that the results become very different compared to the standard contests. The idea of attack and defense is also highly relevant in identity conflict (e.g., Mitra and Ray, 2014), but any research is yet to be conducted in this area.

From a theoretical point of view, many other extensions are possible. There is an existing body of literature on endogenous group or alliance formation in identity, and in contest theory. But currently there is not many studies that intersect on both the areas. Moreover, all of the identity dependent externalities research are conducted with the assumption of complete information. The effects of information and ambiguity will make the topic closer to real life. It may also be possible in case of identity driven group conflict that there are fragmentations within a group due to multi-dimensional identity, which leads to intra-group conflict (see, e.g., Hausken, 2005; Choi et al., 2016). Whereas there are empirical investigations in this area, a solid theoretical investigation will be highly appreciated. Finally, the controversial topic of affirmative action (Chowdhury et al., 2020) in contests is aptly interrelated with the idea of identity. One can observe from the field that identity driven affirmative action may lead to or may mitigate identity driven conflict. Girard

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<sup>3</sup> See Chowdhury (2019) for a summary of the literature.

(2020) provides a first empirical result from India that such affirmative action increases the number of murder of lower castes. However, a theoretical investigation in this is yet to be conducted.

In a laboratory experiment Cadsby et al. (2013) find that priming about professional (compared to personal) features encourages females to join competition more. It is well known that females are often averse to be involved in conflict. Hence, it will be interesting to investigate whether priming can affect female conflict behavior as well. Experiments can help us to understand the components of conflict resolution. Kimbrough and Sheremeta (2013) show that side payments help resolving conflict even without commitment. Kimbrough et al. (2014) show that mediation also helps resolving conflict in the laboratory. However, Fisher (2001) argues that mediation could not mitigate the identity driven ethnic conflict in Cyprus. There is no experiment involving identity driven conflict that tests the effectiveness of conflict resolution tools in the laboratory. Note also that there is a recent neuroscience literature on the economics games of conflict (see, e.g., De Dreu et al., 2019; Rojek-Giffin et al., 2020). It will be interesting to understand the neuro-economic results on identity and conflict as well (Huettel and Kranton, 2012).

Very many interesting applied empirical research can also be conducted in this area. How a macroeconomic or global event, such as the COVID-19 Pandemic, affect the inter-relation between identity and conflict (see, e.g., Chowdhury, 2020) is an important and interesting area of research. This may also help answering a core question that remains unanswered: whether an identity instigates conflict, or a conflict makes identity salient. To point out further possible extensions of empirical research, both sabotage and affirmative action under the shadow of identity remain important areas. The issue of multi-dimensional identity and its effects on conflict resolution will also be appealing. As it is not possible to theoretically or experimentally evaluate the effectiveness of public policies to mitigate identity related conflict, empirical research in this area will be very much welcome.

## References

- Abbink, K. (2012). Laboratory Experiments on Conflict. In Michelle R. Garfinkel and Stergios Skaperdas, (Eds.), *Oxford Handbook of the Economics of Peace and Conflict*. Oxford University Press, New York.
- Abbink, K., Brandts, J., Herrmann, B., & Orzen, H. (2012). Parochial altruism in inter-group conflicts. *Economics Letters*, 117(1), 45-48.
- Akerlof, R. (2017). Value formation: The role of esteem. *Games and Economic Behavior*, 102, 1-19.
- Akerlof, G.A., & Kranton, R.E. (2000). Economics and Identity, *Quarterly Journal of Economics*, 115(3), 715-753.
- Akerlof, G.A., & Kranton, R.E. (2010). *Identity economics: How our identities shape our work, wages, and well-being*. Princeton University Press.
- Ashmore, R. D., Jussim, L., & Wilder, D (2001). *Social identity, intergroup conflict, and conflict reduction* (Vol. 3). Oxford University Press on Demand.
- Bagchi, A., Faria, J. R., & Mathews, T. (2019). A model of a multilateral proxy war with spillovers. *Public Choice*, 179(3-4), 229-248.
- Basu, K. (2005). Racial conflict and the malignancy of identity. *The Journal of Economic Inequality*, 3(3), 221-241.
- Baye, M. R., Kovenock, D., & De Vries, C. G. (1996). The all-pay auction with complete information. *Economic Theory*, 8(2), 291-305.
- Bénabou, R., & Tirole, J. (2011). Identity, morals, and taboos: Beliefs as assets. *The Quarterly Journal of Economics*, 126(2), 805-855.
- Bernard, M., Hett, F., & Mechtel, M. (2016). Social identity and social free-riding. *European Economic Review*, 90, 4-17.
- Bernhard, H., Fischbacher, U. and Fehr, E. (2006) Parochial altruism in humans. *Nature* 442: 912–915.
- Bolton, G. E., & Croson, R. T. (Eds.). (2012). *The Oxford Handbook of Economic Conflict Resolution*. Oxford University Press, New York.
- Bornstein, G. (1992). The free-rider problem in intergroup conflicts over step-level and continuous public goods. *Journal of Personality and Social Psychology*, 62, 597–606.
- Cadsby, C. B., Servátka, M., & Song, F. (2013). How competitive are female professionals? A tale of identity conflict. *Journal of Economic Behavior & Organization*, 92, 284-303.
- Chakravarty, S., Fonseca, M. A., Ghosh, S., & Marjit, S. (2016). Religious fragmentation, social identity and conflict: Evidence from an artefactual field experiment in India. *PloS one*, 11(10), e0164708.
- Charness, G., & Chen, Y. (2020). Social identity, group behavior, and teams. *Annual Review of Economics*, 12, 691-713.
- Chen, R.W., & Chen, Y. (2011). The potential of social identity for equilibrium selection. *American Economic Review*, 101, 2562–2589.

- Chen, Y., & Li, S.X. (2009). Group identity and social preferences. *American Economic Review* 99, 431–457.
- Choi, J.K., & Bowles, S. (2007). The Coevolution of Parochial Altruism and War, *Science*, 318, 636-640.
- Choi, J.P., Chowdhury, S.M., & Kim, J. (2016). Group Contests with Internal Conflict and Power Asymmetry. *Scandinavian Journal of Economics*, 118 (4), 816-840.
- Chowdhury, S.M. (2019). The Attack and Defense Mechanisms – Perspectives from Behavioral Economics and Game Theory. *Behavioral and Brain Sciences*, 42, e121.
- Chowdhury, S.M. (2020). Conflict in the Time of (post-) Corona: Some Assessments from Behavioral Economics. *Peace Economics, Peace Science, and Public Policy*, 26(3), 20200052.
- Chowdhury, S. M., Esteve-González, P., & Mukherjee, A. (2020). Heterogeneity, leveling the playing field, and affirmative action in contests. SSRN Working paper 3655727.
- Chowdhury, S. M., Jeon, J. Y., & Ramalingam, A. (2016). Identity and group conflict. *European Economic Review*, 90, 107-121.
- Chowdhury, S. M., Jeon, J. Y., & Ramalingam, A. (2018). Property rights and loss aversion in contests. *Economic Inquiry*, 56(3), 1492-1511.
- Chowdhury, S.M., & Gürtler, O. (2015). Sabotage in Contests: A Survey. *Public Choice*, 164 (1), 135-155.
- Chowdhury, S.M., & Sheremeta, R.M. (2011). A Generalized Tullock Contest. *Public Choice*, 147 (3), 413-420.
- Chowdhury, S.M., & Topolyan, I. (2016a). Best-shot Versus Weakest-link in Political Lobbying: An Application of Group All-pay Auction. *Social Choice and Welfare*, 47 (4), 959-971.
- Chowdhury, S.M., & Topolyan, I. (2016b). The Attack-and-Defense Group Contests: Best-shot versus Weakest-link. *Economic Inquiry*, 54 (1), 548-557.
- Collier, P., & Hoeffler, A. (1998). On economic causes of civil war. *Oxford economic papers*, 50(4), 563-573.
- Dasgupta, I., & Pal, S. (2021). Touch thee not: Group conflict, caste power, and untouchability in rural India. *Caste Power, and Untouchability in Rural India. Journal of Comparative Economics*, Forthcoming.
- De Dreu, C. K., & Gross, J. (2019). Revisiting the form and function of conflict: Neurobiological, psychological, and cultural mechanisms for attack and defense within and between groups. *Behavioral and brain sciences*, 42.
- Dechenaux, E., Kovenock, D., & Sheremeta, R. M. (2015). A survey of experimental research on contests, all-pay auctions and tournaments. *Experimental Economics*, 18(4), 609-669.
- Deutsch, M., Coleman, P. T., & Marcus, E. C. (Eds.). (2011). *The handbook of conflict resolution: Theory and practice*. John Wiley & Sons. San Francisco.
- Diab, L. N. (1970). A study of intragroup and intergroup relations among experimentally produced small groups. *Genetic Psychology Monographs*, 82(1), 49–82.
- Esteban, J., & Ray, D. (1994). On the measurement of polarization. *Econometrica* 62 (4): 819-51.

- Esteban, J., & Ray, D. (1999). Conflict and distribution. *Journal of Economic Theory*, 87(2), 379-415.
- Esteban, J., & Ray, D. (2008). On the salience of ethnic conflict. *American Economic Review*, 98(5), 2185-2202.
- Esteban, J., & Ray, D. (2011). Linking conflict to inequality and polarization. *American Economic Review*, 101(4), 1345-74.
- Esteban, J., Mayoral, L., & Ray, D. (2012a). Ethnicity and conflict: An empirical study. *The American Economic Review*, 102(4), 1310-1342.
- Esteban, J., Mayoral, L., & Ray, D. (2012b). Ethnicity and Conflict: Theory and Facts, *Science*, 336, 858-865.
- Fang, H., & Loury, G. C. (2005). "Dysfunctional Identities" Can Be Rational. *American Economic Review*, 95(2), 104-111.
- Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *The quarterly journal of economics*, 114(3), 817-868.
- Fisher, R. J. (2001). Cyprus: The failure of mediation and the escalation of an identity-based conflict to an adversarial impasse. *Journal of Peace Research*, 38(3), 307-326.
- Foote, N. N., & Cottrell Jr, L. S. (1955). Identity and interpersonal competence; a new direction in family research. Chicago: The University of Chicago Press.
- Fryer, R., & Jackson, M. O. (2008). A categorical model of cognition and biased decision making. *The BE Journal of Theoretical Economics*, 8(1).
- Fu, Q., & Wu, Z. (2019). Contests: Theory and topics. In *Oxford Research Encyclopedia of Economics and Finance*.
- Garfinkel, M. R., & Skaperdas, S. (Eds.). (2012). *The Oxford handbook of the economics of peace and conflict*. OUP USA.
- Girard, V. (2017). Does inequality matter in conflicts? A case study of religious conflicts in India. *Revue d'economie politique*, 127(1), 93-117.
- Girard, V. (2020). Stabbed in the back? Mandated political representation and murders. *Social Choice and Welfare*, 1-40.
- Hausken, K. (2005). Production and Conflict Models Versus Rent-Seeking Models, *Public Choice*, 123, 59-93.
- Herrmann, B., & Orzen, H. (2008). The appearance of homo rivalis: Social preferences and the nature of rent seeking (No. 2008-10). CeDEx discussion paper series.
- Huang, L., DeScioli, P., & Murad, Z. (2018). Pulling for the team: Competition between political partisans. Mimeo.
- Huettel, S. A., & Kranton, R. E. (2012). Identity economics and the brain: uncovering the mechanisms of social conflict. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 367(1589), 680-691.
- Katz, E., Nitzan, S. and Rosenberg, J. (1990). Rent-seeking for pure public goods. *Public Choice* 65: 49–60.

- Kimbrough, E. O., & Sheremeta, R. M. (2013). Side-payments and the costs of conflict. *International Journal of Industrial Organization*, 31(3), 278-286.
- Kimbrough, E. O., Sheremeta, R. M., & Shields, T. W. (2014). Resolving conflicts by a random device. *Journal of Economic Behavior and Organization*, 99.
- Klor, E. F., & Shayo, M. (2010). Social identity and preferences over redistribution. *Journal of Public Economics*, 94(3), 269-278.
- Klose, B., & Kovenock, D. (2015a). The all-pay auction with complete information and identity-dependent externalities. *Economic Theory*, 59(1), 1-19.
- Klose, B., & Kovenock, D. (2015b). Extremism drives out moderation. *Social Choice and Welfare*, 44(4), 861-887.
- Konrad, K. A. (2009). *Strategy and dynamics in contests*. OUP Catalogue. New York.
- Linster, B. G. (1993). A generalized model of rent-seeking behavior. *Public choice*, 77(2), 421-435.
- Mitra, A., & Ray, D. (2014). Implications of an economic theory of conflict: Hindu-Muslim violence in India. *Journal of Political Economy*, 122(4), 719-765.
- Reynal-Querol, M. (2002). Ethnicity, political systems, and civil wars. *Journal of Conflict Resolution*, 46(1), 29-54.
- Riechmann, T. (2007). An analysis of rent-seeking games with relative-payoff maximizers. *Public Choice*, 133(1-2), 147-155.
- Rojek-Giffin, M., Lebreton, M., Scholte, H. S., van Winden, F., Ridderinkhof, K. R., & De Dreu, C. K. (2020). Neurocognitive Underpinnings of Aggressive Predation in Economic Contests. *Journal of Cognitive Neuroscience*, 32(7), 1276-1288.
- Sambanis, N., & Shayo, M. (2013). Social identification and ethnic conflict. *American Political Science Review*, 107(2), 294-325.
- Sen, A. (1985). Goals, commitment, and identity. *Journal of Law Economics & Organization*, 1, 341.
- Sen, A. (2007). *Identity and violence: The illusion of destiny*. Penguin Books India.
- Shayo, M. (2009). A model of social identity with an application to political economy: Nation, class, and redistribution. *American Political science review*, 147-174.
- Shayo, M. (2020). Social identity and economic policy. *Annual Review of Economics*. 12, 355-389.
- Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. W. (1961). Intergroup conflict and cooperation: The Robbers Cave experiment (Vol. 10). Norman, OK: University Book Exchange.
- Shih, M., Pittinsky, T.L., & Ambady, N. (1999). Stereotype Susceptibility: Identity Salience and Shifts in Quantitative Performance, *Psychological Science*, 10 (1), 81–84.
- Skaperdas, S. (1996). Contest success functions. *Economic theory*, 7(2), 283-290.
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, 33, 47.

- Tullock, Gordon (1980). Efficient Rent Seeking. In J.M. Buchanan, R.D. Tollison, and G. Tullock, (Eds.), *Toward a Theory of the Rent-seeking Society*. Texas A&M University Press, College Station, TX, 97-112.
- Turner, J. (1978). Social Categorization and Social Discrimination in the Minimal Group Paradigm, in Henri Tajfel, ed., *Differentiation between Social Groups*, London: Academic Press.
- Wärneryd, K. (2014). *The economics of conflict: Theory and empirical evidence*. MIT Press. Cambridge.
- Weisel, O., & Zultan, R. (2016). Social motives in intergroup conflict: Group identity and perceived target of threat. *European Economic Review*, 90, 122-133.